



Receipt  
TFW

Confirmation No. 6609

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	GOPALAKRISHNAN	Examiner:	Unassigned
Serial No.:	10/518,779	Group Art Unit:	1700
Filed:	June 6, 2005	Docket No.:	STFD.035US (S02-114US)
Title:	INSULATED-GATE SEMICONDUCTOR DEVICE AND APPROACH INVOLVING JUNCTION-INDUCED INTERMEDIATE REGION		

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence and the papers, as described hereinabove, are being deposited in the United States Postal Service, as first class mail, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on February 22, 2006.

By:

Kelly S. Waltigney

REQUEST FOR CORRECTED FILING RECEIPT

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir/Madam:

Enclosed is a photocopy of the Filing Receipt 01/24/2006 issued by the United States Patent and Trademark Office as Elected Office, with its Notice of Acceptance of Patent Application Serial No. 10/518,779.

Applicant respectfully requests one correction to the Domestic Priority Data Section, as underlined below:

This application is a 371 of PCT/US03/19279 06/19/2003;  
which claims benefit of 60/390,821 06/19/2002.

PCT/US2003/019279 claimed the further benefit of 60/390,821 as was recognized by the International Bureau and the U.S. Receiving Office. Please see attached WIPO publication coversheet, WO 2004/001801. The U.S. Patent & Trademark Office, as Elected Office, has also formally recognized said benefit data as is demonstrated by the 06/19/2002 priority data appearing upon the Notice of Acceptance in this matter (copy attached).

Nevertheless, Applicant provides for entry a Preliminary Amendment, with a Related Application Section, should this facilitate said requested correction to the Filing Receipt.

App. Serial No. 10/518,779  
Filed: 06/06/2005  
Docket No. STFD.035US  
Request for Corrected Filing Receipt

Page 2 of 2

Issuance of a Corrected Filing Receipt, and entry of the attached paper, are respectfully solicited.

Respectfully submitted,

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Dated: February 22, 2006

By: 

Robert J. Crawford  
Reg. No. 32,122



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
 United States Patent and Trademark Office  
 Address: COMMISSIONER FOR PATENTS  
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APPL NO.	FILING OR 371 (c) DATE	ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLMS	IND CLMS
10/518,779	06/06/2005	1700	2040	STFD.035US	15	43	12

CONFIRMATION NO. 6609

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## FILING RECEIPT



\*OC000000017890470\*

Date Mailed: 01/24/2006

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please mail to the Commissioner for Patents P.O. Box 1450 Alexandria Va 22313-1450. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

## Applicant(s)

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**Power of Attorney:** The patent practitioners associated with Customer Number 40581.

## Domestic Priority data as claimed by applicant

This application is a 371 of PCT/US03/19279 06/19/2003

which claims benefit of 60/390,821 6/19/2002.

## Foreign Applications

UNITED STATES OF AMERICA 60390821 06/19/2002

**Projected Publication Date:** 05/04/2006

**Non-Publication Request:** No

**Early Publication Request:** No

**\*\* SMALL ENTITY \*\***

## Title

Insulated-gate semiconductor device and approach involving junction-induced intermediate region

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
31 December 2003 (31.12.2003)

PCT

(10) International Publication Number  
**WO 2004/001801 A2**

- (51) International Patent Classification<sup>7</sup>: **H01L**
- (21) International Application Number:  
PCT/US2003/019279
- (22) International Filing Date: 19 June 2003 (19.06.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/390,821 19 June 2002 (19.06.2002) US
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(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,  
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CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,  
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC,  
SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG,  
US, UZ, VC, VN, YU, ZA, ZM, ZW.

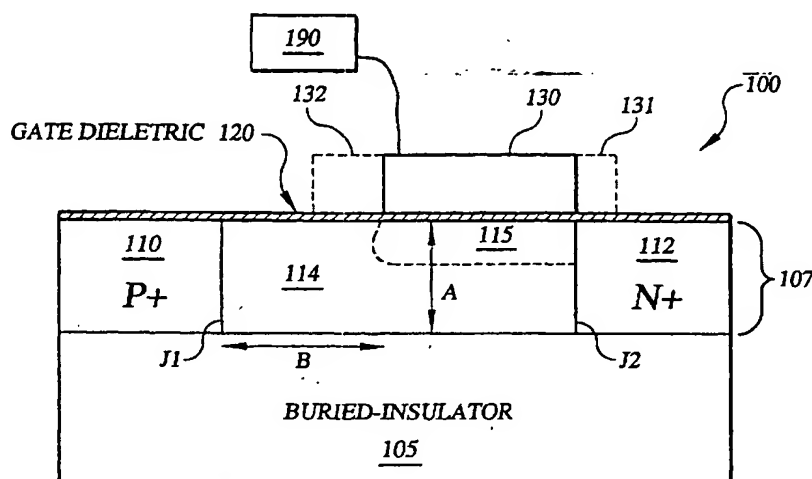
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— without international search report and to be republished  
upon receipt of that report

[Continued on next page]

(54) Title: INSULATED-GATE SEMICONDUCTOR DEVICE AND APPROACH INVOLVING JUNCTION-INDUCED INTER-MEDIATE REGION



(57) Abstract: Semiconductor device performance is improved via an insulated-gate PIN-type structure that is adapted to abruptly switch between conductance states by modulating an electric field in the intermediate (I) region. According to an example embodiment of the present invention, an insulated gate-type structure includes a body with first and second end regions and an intermediate region coupled therebetween, the intermediate region having a length defined by junctions at the first and second regions. The first and second end regions have opposite polarizations and the intermediate region has a polarization that is neutral relative to the polarizations of the first and second end regions. The insulated gate-type structure also includes a gate that is coupled to the intermediate region and adapted, with the intermediate region, to apply an electric field nearer one of the two junctions. With the body reverse biased, the electric field can be modulated to switch the structure between a stable state and a current-conducting state in which an avalanche breakdown occurs in the intermediate region.



UNITED STATES PATENT AND TRADEMARK OFFICE

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U.S. APPLICATION NUMBER NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
10/518,779	Kailash Gopalakrishnan	STFD.035US

INTERNATIONAL APPLICATION NO.	
PCT/US03/19279	
I.A. FILING DATE	PRIORITY DATE
06/19/2003	06/19/2002

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CONFIRMATION NO. 6609

371 ACCEPTANCE LETTER



\*OC000000017890471\*

Date Mailed: 01/24/2006

## NOTICE OF ACCEPTANCE OF APPLICATION UNDER 35 U.S.C 371 AND 37 CFR 1.495

The applicant is hereby advised that the United States Patent and Trademark Office in its capacity as a Designated / Elected Office (37 CFR 1.495), has determined that the above identified international application has met the requirements of 35 U.S.C. 371, and is ACCEPTED for national patentability examination in the United States Patent and Trademark Office.

The United States Application Number assigned to the application is shown above and the relevant dates are:

<u>06/06/2005</u>	<u>06/06/2005</u>
DATE OF RECEIPT OF 35 U.S.C. 371(c)(1), (c)(2) and (c)(4) REQUIREMENTS	DATE OF COMPLETION OF ALL 35 U.S.C. 371 REQUIREMENTS

A Filing Receipt (PTO-103X) will be issued for the present application in due course. **THE DATE APPEARING ON THE FILING RECEIPT AS THE " FILING DATE" IS THE DATE ON WHICH THE LAST OF THE 35 U.S.C. 371 (c)(1), (c)(2) and (c)(4) REQUIREMENTS HAS BEEN RECEIVED IN THE OFFICE. THIS DATE IS SHOWN ABOVE.** The filing date of the above identified application is the international filing date of the international application (Article 11(3) and 35 U.S.C. 363). Once the Filing Receipt has been received, send all correspondence to the Group Art Unit designated thereon.

The following items have been received:

- Indication of Small Entity Status
- Copy of the International Application filed on 12/17/2004
- Preliminary Amendments filed on 12/17/2004
- Information Disclosure Statements filed on 04/05/2005
- Oath or Declaration filed on 06/06/2005
- Small Entity Statement filed on 12/17/2004
- Request for Immediate Examination filed on 12/17/2004
- U.S. Basic National Fees filed on 12/17/2004
- ✓ • Priority Documents filed on 12/17/2004